PSY 608: Research Methods in Applied Behavior Analysis
Fall, 2004 • TR 11:00-12:15 • 2908 Wood Hall

Instructor: **Dr. Jim Carr**
Office: 3758 Wood Hall
Phone: 387-4925
E-mail: jim.carr@wmich.edu
Office Hrs: Tue. 3:30-4:30, Wed. 10-11 & by appointment
Web site: http://homepages.wmich.edu/~carrje/

COURSE GOALS

The purpose of this course is to introduce you to the fundamentals of behavior-analytic research methods. The course will cover the theoretical foundations of empirical research, as well as the practical issues in conducting experimental research. The majority of the course will be devoted to methods related to single-case research (i.e., data collection, logic, designs). The course content is primarily based on contemporary book chapters, with additional articles from peer-reviewed journals. In addition to the in-class discussions based on the assigned readings, you will be responsible for several additional assignments. These assignments are mostly practical in nature and include learning how to calculate interobserver agreement, graph single-case designs using computers, criticize empirical research, and write a research prospectus.

Based on my prior teaching experience, I have determined that success in this course depends at least two things: (a) thoroughly reading the course materials before class and (b) participation in class discussion. If you are not prepared to commit to the reading and participation requirements, you should probably reconsider your enrollment in the course.

REQUIRED READINGS

1. American Psychological Association (2001). *Publication manual of the American Psychological Association* (5th ed.). Washington, DC: Author.
2. *Coursepack* containing 7 journal articles & 22 book chapters. The coursepack can be purchased from the WMU Bookstore.

Journal Articles
- Carr, J. E. (2004). *Recommendations for the reporting of multiple-baseline designs across participants*. Manuscript submitted for publication.
- Carr, J. E., & Burkholder, E. O. (1998). Creating single-subject design graphs with Microsoft Excel. *Journal of Applied Behavior Analysis, 31,* 245-251. (located at the end of the coursepack)
- Chambless, D. L., & Hollon, S. D. (1998). Defining empirically supported therapies. *Journal of Consulting and Clinical Psychology, 66,* 7-18. (located at the end of the coursepack)
- Peterson, L., Homer, A. L., & Wonderlich, S. A. (1982). The integrity of independent variables in behavior analysis. *Journal of Applied Behavior Analysis, 15,* 477-492.
- Petursdottir, A. I., & Carr, J. E. (2004). *Applying the taxonomy of validity threats to experimental single-case designs*. Manuscript submitted for publication.
- Sanderson, W. C. (2003). Why empirically supported psychological treatments are important. *Behavior Modification, 27,* 290-299. (located at the end of the coursepack)
- Woods, D. W., & Twohig, M. P. (2002). Using habit reversal to treat chronic vocal tic

disorder in children. *Behavioral Interventions, 17,* 159-168.

Book Chapters

- Barlow, D. H., & Hersen, M. (1984). *Single case experimental designs: Strategies for studying behavior change* (2nd ed.). Boston: Allyn and Bacon. (Chs. 2, 10)
- Cooper, J. O., Heron, T. E., & Heward, W. L. (1987). *Applied behavior analysis.* Columbus, OH: Merrill. (Chs. 3-9)
- Fuqua, R. W., & Schwade, J. (1986). Social validation of applied behavioral research: A selective review and critique. In A. Poling & R. W. Fuqua (Eds.), *Research methods in applied behavior analysis: Issues and advances* (pp. 265-292). New York: Plenum.
- Hayes, S. C., Barlow, D. H., & Nelson-Gray, R. O. (1999). *The scientist practitioner: Research and accountability in the age of managed care* (2nd ed.). Boston: Allyn and Bacon. (Chs. 1, 8)
- Johnston, J. M., & Pennypacker, H. S. (1993). *Strategies and tactics of behavioral research* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates. (Ch. 3)
- Kazdin, A. E. (1998). *Research design in clinical psychology* (3rd ed.). Boston: Allyn and Bacon. (Chs. 2-6, 16, 17)
- Martella, R. C., Nelson, R., Marchand-Martella, N. E. (1999). *Research methods: Learning to become a critical research consumer.* Needham Heights, MA: Allyn & Bacon. (Ch. 14)
- Page, T. J., & Iwata, B. A. (1986). Interobserver agreement: History, theory, and current methods. In A. Poling & R. W. Fuqua (Eds.), *Research methods in applied behavior analysis: Issues and advances* (pp. 99-126). New York: Plenum.

ATTENDANCE / MAKE-UP POLICY

Attendance is not mandatory, but important for obtaining information from class discussions, taking quizzes/exams, and turning in assignments. Make-up quizzes/exams will only be given in cases of documented emergencies, and only if I am informed within 24 hours after the scheduled assignment is due.

ACADEMIC DISHONESTY

You are responsible for making yourself aware of and understanding the policies and procedures in the Graduate Catalog (pp. 24-26) that pertain to Academic Integrity. These policies include cheating, fabrication, falsification and forgery, multiple submission, plagiarism, complicity and computer misuse. If there is reason to believe you have been involved in academic dishonesty, you will be referred to the Office of Student Judicial Affairs. You will be given the opportunity to review the charge(s). If you believe you are not responsible, you will have the opportunity for a hearing. You should consult with me if you are uncertain about an issue of academic honesty prior to the submission of an assignment or test.

EVALUATION OF STUDENT PERFORMANCE

Unannounced Quizzes

At the beginning of most classes, there will be a ~5-minute quiz on the assigned readings for that day. Quiz questions will be close-ended (i.e., multiple-choice, true/false) in nature. The purpose of the quiz is to increase attendance, ensure your reading of the material, and minimally evaluate your subsequent understanding. Hence, the quizzes will not include questions requiring knowledge of overly specific details. Instead, your knowledge of the main themes and sections of the readings will be assessed. I

will drop your 2 lowest quiz scores before grade calculation.

Exams
There will be four traditional exams this semester, each covering approximately one quarter of the course material. The exams will consist of short-answer and essay questions. You will have the entire scheduled class time to complete your exam. The fourth exam will be administered during finals week, but will not be cumulative in nature.

Interobserver Agreement Worksheet
You will be given a worksheet containing raw data that were collected using different recording strategies (e.g., interval, event). You will be required to choose the correct formula and calculate interobserver agreement for each data set. This assignment is due on October 5 at the beginning of class.

Excel Graph Assignment
You will be given four sets of raw data, each collected for a different single-case design. Using instructions that will be provided to you in class and in Carr and Burkholder (1998; located at the end of your coursepack), you will be required to produce four graphs (i.e., reversal, multiple-baseline, alternating treatments, changing-criterion) using MS Excel. This assignment is due on October 19 at the beginning of class.

Written Article Critique
You will be required to locate a single-case *experimental* research article from the applied literature, preferably from a behavioral journal. Brief research reports are not acceptable. You will then write a 4-6 double-spaced, APA-style critique of the article. Be sure to integrate your critical analysis of the study with the material covered in class. See the attached handout for more information on this assignment. This assignment is due on October 26. You must e-mail your article reference to me for approval no later than September 23.

Research Prospectus
A prospectus is a document containing the introduction and method sections of a proposed study. As an assessment of your learning in this course, you will write an APA-style prospectus for a single-case experimental study of your choice. The introduction section should be 3-4 pages in length, and the method section should be 5-7 pages in length. *Note: these are strict page limits.* Your research topic/question must be approved by me by September 28. A detailed outline of your introduction and method sections, along with a comprehensive and final reference list is due to me on November 2. The prospectus is due on November 23 at the beginning of class. Instructions for this assignment will be presented in class on October 7.

Re-grade Policy
If a student disagrees with an evaluation of an assignment, a re-grade request may be submitted within one week of receipt of the grade in question. The request must contain a full explanation of the point of contention, as well as a copy of the assignment. Re-grade requests will be evaluated only once, and may result in no grade change, or a higher or lower grade being awarded.

GRADING

Grade Allocation

Daily quizzes . . .	15%
Exams 1-4 . . .	50%
Graph Assignment . .	4%
IOA Worksheet . .	3%
Written Article Critique .	5%
Prospectus Outline . .	3%
Prospectus . . .	20%

Grading Scale

A	92-100%
BA	88-91%
B	82-87%
CB	78-81%
C	72-77%
DC	68-71%
D	60-67%
E	59% & below

The instructor is committed to equal opportunity in education for all students, including those with documented physical or learning disabilities. It is the responsibility of students with documented disabilities to contact the instructor during the first week of class to discuss appropriate accommodations to ensure equity in grading, classroom experiences, and outside assignments. If necessary, the instructor will meet with the student and staff members of the Disabled Student Resources and Services office to formulate a written plan for appropriate accommodations.

COURSE SCHEDULE

Date	Topic	Readings
Aug. 31	Course introduction & syllabus	
Sep. 2	The Scientist-Practitioner	Hayes et al. (1999) - Ch. 1
Sep. 7	Formulating Research Ideas & Questions	Kazdin (1998) - Ch. 4 (pp. 62-79); Johnston & Pennypacker - Ch. 3 (pp. 36-50)
Sep. 9	Internal & External Validity	Kazdin (1998) - Ch. 2, Ch. 3
Sep. 14	**Exam 1**	
Sep. 16	Defining & Recording Behavior	Cooper et al. (1987) - Ch. 3 (pp. 54-58), Ch. 4, Ch. 5 (pp. 81-91)
Sep. 21	Interobserver Agreement	Page & Iwata (1986) - pp. 99-116, 120-126***
Sep. 23	Data Collection & IOA (cont'd)	**Article Critique reference due**
Sep. 28	In-Class Data Collection Exercises	**Prospectus topic due**
Sep. 30	Graphic Data Analysis	Cooper et al. (1987) - Ch. 6
Oct. 5	Graphic Data Analysis (cont'd)	**IOA Worksheet due**
Oct. 7	The Research Prospectus	
Oct. 12	Introduction to Analysis (Single-Case Design Logic)	Cooper et al. (1987) – Ch. 7
Oct. 14	**Exam 2** *(Dr. Carr @ BABAT)*	
Oct. 19	Single-Case Designs: Reversal Designs	Cooper et al. (1987) - Ch. 8 (pp. 163-179); **Graph assignment due**
Oct. 21	Single-Case Designs: Multiple-Baseline Designs	Cooper et al. (1987) - Ch. 9 (pp. 195-219); Hayes et al. (1999) – Ch. 8 (pp. 217-220); Carr (2004)
Oct. 26	Single-Case Designs: Alternating Treatments Designs & Changing-Criterion Designs	Cooper et al. (1987) - Ch. 8 (pp. 179-193), Ch. 9 (pp. 219-224); **Article Critique due**
Oct. 28	Single-Case Designs: Validity, Generality, & Replication	Petursdottir & Carr (2004); Barlow & Hersen (1984) – Ch. 2 (pp. 50-59), Ch. 10
Nov. 2	Treatment Integrity & Social Validity	Peterson et al. (1982); Fuqua & Schwade (1986); **Prospectus outline due**
Nov. 4	In-Class Critique	Woods & Twohig (2002)
Nov. 9	**Exam 3**	
Nov. 11	Between-Subjects Designs 1	Kazdin (1998) – Ch. 5
Nov. 16	Between-Subjects Designs 2	Kazdin (1998) – Ch. 6
Nov. 18	Research Syntheses	Martella et al. (1999) - Ch. 14 (pp. 489-516)
Nov. 23	Research Ethics	Kazdin (1998) – Ch. 16; **Prospectus due**
Nov. 25	*No Class (Thanksgiving)*	
Nov. 30	Research Dissemination	Kazdin (1998) – Ch. 17
Dec. 2	TBA	
Dec. 8	**Exam 4 (8:00-10:00)**	

*** *You do not need to learn the correlation-coefficient calculations.*